

Amendments to the Claims

Please amend the claims by replacing all prior listings of claims with the listing of claims below pursuant to 37 C.F.R. §1.121:

Listing of claims:

1. (Currently Amended) A method for determining the sequence of a DNA, wherein (i) ~~about~~ 1000 or fewer copies of the DNA are bound to a solid substrate via 1,3-dipolar azide-alkyne cycloaddition chemistry and (ii) each copy of the DNA is a denatured single-stranded template and comprises a 5'-phosphorylated self-priming moiety covalently linked to a 3'-end of the DNA, comprising performing the following steps ~~for each nucleic acid residue of the DNA to be sequenced:~~
 - (a) contacting the bound DNA with a DNA polymerase and four photocleavable fluorescent nucleotide analogues under conditions permitting the DNA polymerase to catalyze DNA synthesis, wherein (i) the nucleotide analogues consist of an analogue of G, an analogue of C, an analogue of T and an analogue of A, so that a nucleotide analogue complementary to the residue of the single-stranded template being sequenced is incorporated into bound to the DNA extension product on the 5'-phosphorylated self-priming moiety of the bound DNA by the DNA polymerase, and (ii) each of the four analogues has a pre-determined fluorescence emission wavelength which is different than the fluorescence emission wavelengths of the other three analogues;
 - (b) removing the unincorporated unbound nucleotide analogues not incorporated into the DNA extension product on the 5'-phosphorylated self-priming moiety

of the bound DNA; and

(c) determining the identity of the incorporated bound nucleotide analogue and; analogue,

(d) repeating steps (a) to (c) for incorporation of the next nucleotide analogue complementary to the subsequent base of the bound single stranded template DNA,

thereby determining the sequence of the DNA.

2. (Currently Amended) The method of claim 1, further comprising the step of photocleaving the fluorescent moiety from the incorporated bound nucleotide analogue following step (c).
3. (Original) The method of claim 1, wherein the solid substrate is glass or quartz.
4. (Original) The method of claim 1, wherein fewer than 100 copies of the DNA are bound to the solid substrate.
5. (Original) The method of claim 1, wherein fewer than 20 copies of the DNA are bound to the solid substrate.
6. (Original) The method of claim 1, wherein fewer than five copies of the DNA are bound to the solid substrate.
7. (Original) The method of claim 1, wherein one copy of the DNA is bound to the solid substrate.
8. (Currently Amended) A method for determining the sequence of an RNA, wherein (i) ~~about~~ 1000 or fewer copies of the RNA are bound to a solid substrate via 1,3-dipolar azide-alkyne cycloaddition chemistry and (ii) each copy of the RNA is a

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single-stranded template and comprises a 5'-phosphorylated self-priming moiety covalently linked to a 3'-end of the bound RNA, comprising performing the following steps for each nucleic acid residue of the RNA to be sequenced:

- (a) contacting the bound RNA with a RNA polymerase and four photocleavable fluorescent nucleotide analogues under conditions permitting the RNA polymerase to catalyze RNA synthesis, wherein (i) the nucleotide analogues consist of an analogue of G, an analogue of C, an analogue of U and an analogue of A, so that a nucleotide analogue complementary to the residue of the single-stranded template being sequenced is incorporated into bound to the RNA extension product on the 5'-phosphorylated self-priming moiety of the bound RNA by the RNA polymerase, and (ii) each of the four analogues has a pre-determined fluorescence emission wavelength which is different than the fluorescence emission wavelengths of the other three analogues;
- (b) removing the unincorporated unbound nucleotide analogues not incorporated into the RNA extension product on the 5'phosphorylated self-priming moiety of the bound RNA; and
- (c) determining the identity of the incorporated bound nucleotide analogue and; analogue,
- (d) repeating steps (a) to (c) for incorporation of the next nucleotide analogue complementary to the subsequent base of the bound single stranded template RNA,

thereby determining the sequence of the RNA.

9. (Currently Amended) The method of claim 8, further comprising

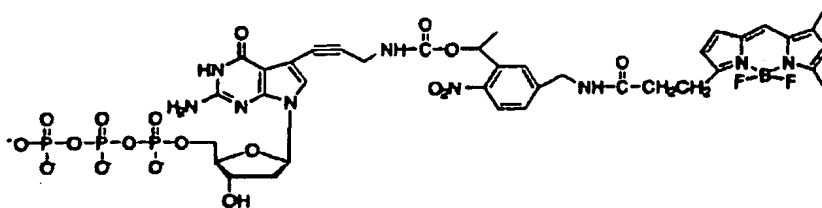
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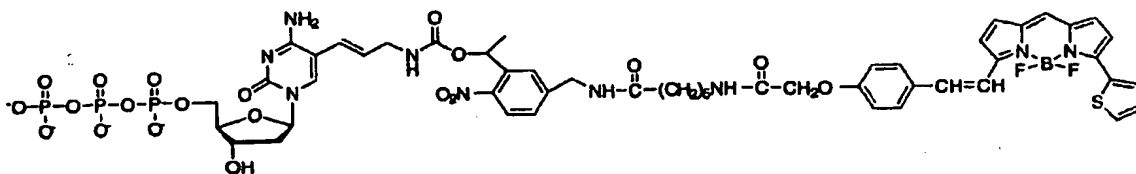
the step of photocleaving the fluorescent moiety from the incorporated ~~bound~~ nucleotide analogue following step (c).

10. (Original) The method of claim 8, wherein the solid substrate is glass or quartz.
11. (Original) The method of claim 8, wherein fewer than 100 copies of the RNA are bound to the solid substrate.
12. (Original) The method of claim 8, wherein fewer than 20 copies of the RNA are bound to the solid substrate.
13. (Original) The method of claim 8, wherein fewer than five copies of the RNA are bound to the solid substrate.
14. (Original) The method of claim 8, wherein one copy of the RNA is bound to the solid substrate.
15. (Currently Amended) A composition of matter ~~Matter~~ comprising a solid substrate having a DNA or an RNA bound thereto via 1,3-dipolar azide-alkyne cycloaddition chemistry, wherein (i) about 1000 or fewer copies of the DNA or the RNA are bound to the solid substrate, and (ii) each copy of the DNA or the RNA comprises a self-priming moiety.
16. (Cancelled)
17. (Cancelled)

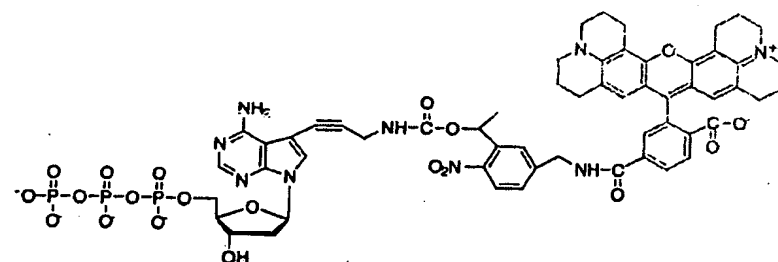
18. (Currently Amended) A compound having the structure:



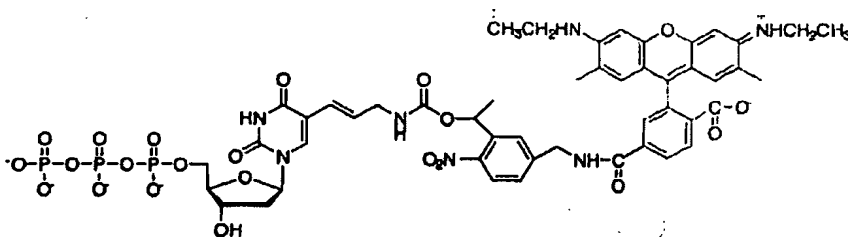
or



or



or



19. (Cancelled)

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CC(C)OC(=O)NCC=Cc1nc2c(nc(=O)n2C3C4C(C3)OC(CO4)COP(=O)([O-])OP(=O)([O-])OP(=O)([O-])[O-])O)N

22. (Previously Presented) A composition of matter comprising a solid substrate having a RNA bound thereto via 1,3-dipolar azide-alkyne cycloaddition chemistry, wherein (i) about 1000 or fewer copies of the RNA are bound to the solid substrate, and (ii) each copy of the RNA comprises a self-priming moiety.

CC(C)OC(=O)NCCc1ccc([N+](=O)[O-])cc1OC(=O)NCCc2ccc3c(c2)nc4c3nc5c4nc6c5nc7c6nc8c7nc9c8nc9F)c2CC(C)OC(=O)NCC#CC1=CN2C(=N1)N=CN=C2[C@H]3C[C@@H](COP(=O)([O-])OP(=O)([O-])OP(=O)([O-])[O-])[C@@H](O)[C@H]3c4ccc(cc4)C(=O)NCCc5ccc(cc5)C(=O)Nc6ccc7c8c9c10c11c12c13c14c15c16c17c18c19c20c21c22c23c24c25c26c27c28c29c30c31c32c33c34c35c36c37c38c39c40c41c42c43c44c45c46c47c48c49c50c51c52c53c54c55c56c57c58c59c60c61c62c63c64c65c66c67c68c69c70c71c72c73c74c75c76c77c78c79c80c81c82c83c84c85c86c87c88c89c90c91c92c93c94c95c96c97c98c99c100c101c102c103c104c105c106c107c108c109c110c111c112c113c114c115c116c117c118c119c120c121c122c123c124c125c126c127c128c129c130c131c132c133c134c135c136c137c138c139c140c141c142c143c144c145c146c147c148c149c150c151c152c153c154c155c156c157c158c159c160c161c162c163c164c165c166c167c168c169c170c171c172c173c174c175c176c177c178c179c180c181c182c183c184c185c186c187c188c189c190c191c192c193c194c195c196c197c198c199c200c201c202c203c204c205c206c207c208c209c210c211c212c213c214c215c216c217c218c219c220c221c222c223c224c225c226c227c228c229c230c231c232c233c234c235c236c237c238c239c240c241c242c243c244c245c246c247c248c249c250c251c252c253c254c255c256c257c258c259c260c261c262c263c264c265c266c267c268c269c270c271c272c273c274c275c276c277c278c279c280c281c282c283c284c285c286c287c288c289c290c291c292c293c294c295c296c297c298c299c300c301c302c303c304c305c306c307c308c309c310c311c312c313c314c315c316c317c318c319c320c321c322c323c324c325c326c327c328c329c330c331c332c333c334c335c336c337c338c339c340c341c342c343c344c345c346c347c348c349c350c351c352c353c354c355c356c357c358c359c360c361c362c363c364c365c366c367c368c369c370c371c372c373c374c375c376c377c378c379c380c381c382c383c384c385c386c387c388c389c390c391c392c393c394c395c396c397c398c399c400c401c402c403c404c405c406c407c408c409c410c411c412c413c414c415c416c417c418c419c420c421c422c423c424c425c426c427c428c429c430c431c432c433c434c435c436c437c438c439c440c441c442c443c444c445c446c447c448c449c450c451c452c453c454c455c456c457c458c459c460c461c462c463c464c465c466c467c468c469c470c471c472c473c474c475c476c477c478c479c480c481c482c483c484c485c486c487c488c489c490c491c492c493c494c495c496c497c498c499c500c501c502c503c504c505c506c507c508c509c510c511c512c513c514c515c516c517c518c519c520c521c522c523c524c525c526c527c528c529c530c531c532c533c534c535c536c537c538c539c540c541c542c543c544c545c546c547c548c549c550c551c552c553c554c555c556c557c558c559c560c561c562c563c564c565c566c567c568c569c570c571c572c573c574c575c576c577c578c579c580c581c582c583c584c585c586c587c588c589c590c591c592c593c594c595c596c597c598c599c600c601c602c603c604c605c606c607c608c609c610c611c612c613c614c615c616c617c618c619c620c621c622c623c624c625c626c627c628c629c630c631c632c633c634c635c636c637c638c639c640c641c642c643c644c645c646c647c648c649c650c651c652c653c654c655c656c657c658c659c660c661c662c663c664c665c666c667c668c669c670c671c672c673c674c675c676c677c678c679c680c681c682c683c684c685c686c687c688c689c690c691c692c693c694c695c696c697c698c699c700c701c702c703c704c705c706c707c708c709c710c711c712c713c714c715c716c717c718c719c720c721c722c723c724c725c726c727c728c729c730c731c732c733c734c735c736c737c738c739c740c741c742c743c744c745c746c747c748c749c750c751c752c753c754c755c756c757c758c759c760c761c762c763c764c765c766c767c768c769c770c771c772c773c774c775c776c777c778c779c780c781c782c783c784c785c786c787c788c789c790c791c792c793c794c795c796c797c798c799c800c801c802c803c804c805c806c807c808c809c810c811c812c813c814c815c816c817c818c819c820c821c822c823c824c825c826c827c828c829c830c831c832c833c834c835c836c837c838c839c840c841c842c843c844c845c846c847c848c849c850c851c852c853c854c855c856c857c858c859c860c861c862c863c864c865c866c867c868c869c870c871c872c873c874c875c876c877c878c879c880c881c882c883c884c885c886c887c888c889c890c891c892c893c894c895c896c897c898c899c900c901c902c903c904c905c906c907c908c909c910c911c912c913c914c915c916c917c918c919c920c921c922c923c924c925c926c927c928c929c930c931c932c933c934c935c936c937c938c939c940c941c942c943c944c945c946c947c948c949c950c951c952c953c954c955c956c957c958c959c960c961c962c963c964c965c966c967c968c969c970c971c972c973c974c975c976c977c978c979c980c981c982c983c984c985c986c987c988c989c990c991c992c993c994c995c996c997c998c999

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25. (New) The compound of claim 18 having the structure:

